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Cold Storage Locker Plants in Ohio

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COLD STORAGE LOCKER PLANTS IN OHIO

R. W. SHERMAN

Food preservation in cold storage locker plants is a comparatively new development in Ohio. One cold storage warehouse rented space for storage to individuals as early as 1918. Each individual furnished a box or barrel in which his food was stored. This was started as an accommodation to a few who wished to store game and fish. No quick-freeze facilities were available. In 1926 this company built some wire boxes or cages which displaced the odd shaped containers used previously. Such service probably was rendered by several other cold storage warehouse plants during that period, but development of cold storage locker plants commercially in Ohio did not begin until 1936 and 1937. A few plants were opened before that but the major development began to take shape at that time, and by 1941 plant construction was at its height.

The year 1941 saw almost as many plants opened as in all years previous to that. While the entry of the United States into the war increased the demand for such food storage, the actual construction and opening of plants was slowed down and brought almost to a halt in 1943. Lack of material for building and equipping was the cause of the slowdown. By 1944, materials were made available and the number of plants constructed had again increased and that year was second only to 1941 in number opened for use. As of April 1945 there were 230 plants licensed in Ohio with approximately 116,000 lockers.

This study was designed to survey the cold storage locker plant facilities in Ohio and ascertain something about the use of the lockers by the patrons and what they expect to do in the future concerning preservation of foods by freezing.

SOURCES OF DATA

Cold storage locker plants are licensed by the State of Ohio Department of Agriculture to operate in Ohio. This fact made it possible to obtain, for use in this study, a complete list of operating plants and the number of lockers in each plant.

Personal visits were made to more than a fourth of the locker plants of Ohio in obtaining data concerning the plants and their facilities. Questionnaires were mailed to the remainder of the plants and a high percentage were filled out and returned. Altogther, information was obtained from 142 plants and two branch plants. The branch plants are treated as individual plants for the purpose of this study. These data concerning plants were collected in late 1944 and early 1945.

Questionnaires were sent to 2,210 locker patrons and about 1,400 were returned. The lists of names for mailing were furnished by 51 plants well distributed over the state and represented almost 10 percent of their patrons. These returned questionnaires furnished the information for the phase of the study concerning patron use of lockers.

SUMMARY

On April 1, 1945 there were 230 licensed cold storage locker plants in Ohio with about 116,000 individual lockers. The Ohio plants represent less than 4 percent of the total in the United States.

Ninety-nine of the 144 plants furnishing data for the study had some other business in connection with the locker plant. The types of business most commonly associated with the locker plants were grocery stores, meat markets, ice manufacturing plants, cold storage warehouses, coal sales, and creameries.

Of the 144 plants, there were 127 built as walk-in plants, 4 as floor type, and 4 as automatic. The remainder were combinations of these types with the exception of three for which the type was not stated. Individuals owned 62 of the plants, 30 were owned by partnerships, 40 by corporations, and 10 by cooperatives. Ownership of two plants was not stated.

There was an average of 541 lockers per plant in the 144 plants. Slightly over 80 percent of the lockers were installed during the 4 years of 1941 to 1944, inclusive.

The average charge made for lockers of all sizes was $12.68. The lowest charge was $5 for small lockers of less than 4 cubic feet capacity and the highest was $20 by one plant for some very large lockers. Lockers of just slightly over 6 cubic feet capacity accounted for the bulk of lockers and rented for an average of $12.80 per locker.

Slaughtering services were furnished by 32 plants. Where charges were made by the head, the average was $1.58 for hogs, $2.15 for cattle, and $1.30 for veal calves. The average rates, where charged by the hundred pounds, were $1.21 for hogs, $1.35 for cattle, and $1.25 for veal calves.

Lard rendering was done by 38 plants at an average charge of 2.13 cents per pound. Smoking and curing service was offered by 45 plants at an average charge of 3.97 cents per pound. Where quick freezing was done alone, the average charge was .87 cents per pound. The average charge for cutting, wrapping, and freezing of meat was 2.28 cents per pound for pork and 2.32 for beef.

About 4 percent of the lockers in the 144 plants were held for overflow use. Operators said it was desirable to have some overflow space available to the locker renters at all times for storing temporary surpluses. Not enough lockers were held out for such use because of the heavy demand for lockers during the past few years.

Locker content insurance was reported by 75 plants, 17 of which bore the cost themselves. The average charge made to the locker user was 47.5 cents per year per locker.

Patrons of 12 locker plants stored an average of 288 pounds of food per year. This amounts to a little more than one complete filling of the locker each year. For the different locker plants the storage varied from 144 to 553 pounds.

Eighty-six percent of the patrons had been renting lockers for 2 years or more and 10.4 percent for 5 years or more. The farm families using lockers for freezing food averaged about 4.0 individuals per family and the non-farm families averaged about 3.6 individuals.

Locker patrons were renting an average of 1.4 lockers each. Many families were renting lockers at more than one plant and in some instances lockers were shared by two families.

The distance which patrons lived from their locker plant varied from less than one city block for some to as much as 35 miles for a few patrons. Farm users averaged 5.92 miles from their plant and urban users 3.37 miles with an average of 5.03 miles for both groups. There were numerous complaints from those who lived over 5.0 miles from the locker plant which would indicate that when the distance is greater than this the utility of lockers is seriously impaired. About 35 percent of the area of Ohio is within 5 miles of a locker plant but the percentage of families which can be served by locker plants within this distance is much smaller.

A considerable increase in locker plant numbers in rural areas would be necessary to accommodate the percentage of rural people who are served in several other agricultural states where the locker development has progressed much farther than in Ohio.

The extra driving done by locker users in going to their lockers amounted to about 101.7 miles per user per year.

About 50 percent of both the farm and non-farm groups who did not have slaughtering and curing services available at the plant where they were renting lockers expressed their desire for the addition of such services.

Home cold storage units will be purchased by 50.9 percent of the farm users and by 56.8 percent of the non-farm users when they become available, according to the survey. Almost half of those who expect to buy home units expressed their desire for units of 10 cubic feet capacity. This would afford slightly less storage capacity than two standard size lockers at plants. The average of the maximum prices which prospective purchasers said they would be willing to pay was $285, with a variation from $195 for those who desired 5 cubic foot units to $453 for those who desired units of more than 15 cubic foot capacity.

From statements by those who expect to purchase home units, it appears that about one-half of the meat stored in their home units will be processed by locker plants.

Satisfaction with use of lockers was stated by 1,182 users while 77 said they were not satisfied. Those who were dissatisfied said it was due to off-flavor in products, that lockers were too expensive due to poor management, or that they couldn't see any advantage in locker storage.

Advantages of locker storage of food stated by patrons were: (1) Ease of preparation for storage, (2) less food loss, (3) saving by purchasing in wholesale quantities, (4) better quality of food, (5) convenience of food supply, and (6) year round availability of variety. The patrons were almost unanimous in saying that beef was by far the most satisfactory meat for storing. Among the vegetables, those mentioned most often as satisfactory or very good were corn, peas, limas, green and wax beans, asparagus, broccoli, rhubarb, and spinach. Several of these same vegetables were also mentioned as unsatisfactory by some locker users. Strawberries, cherries, peaches, and berries of all kinds were the fruits mentioned frequently as being satisfactorily stored.

A few of the most often made recommendations for improvement of locker storage and service were: (1) more convenient plant location, (2) lower locker rental, (3) larger lockers, (4) better service at plant, (5) addition of curing and slaughtering facilities, (6) lockers with more convenient access, (7) having plant open more hours, and (8) more care not to mix products of different patrons.

LOCKER PLANTS AND FACILITIES

From information on the patron questionnaires returned, it was estimated that the 144 plants from which information was obtained were furnishing locker service to about 56,000 families. Figuring the same number of lockers per family for the Ohio locker plants not included in this study, an additional 27,500 families were using cold storage lockers. The total of the estimated 116,000 lockers in Ohio plants were therefore being used by about 83,500 families or one out of every 23 families in Ohio. It is assumed here that each patron represents one family.

Location of Ohio Locker Plants

The accompanying map of Ohio shows location of locker plants in Ohio for April 1945. A questionnaire was sent to each of these 230 locker plants to obtain information for this survey. The 144 plants furnishing data for the study are shown on the map by a dot surrounded by a circle. Other plant locations are shown by a black triangle. As can be seen from the map, the data were obtained from plants well distributed over the State.

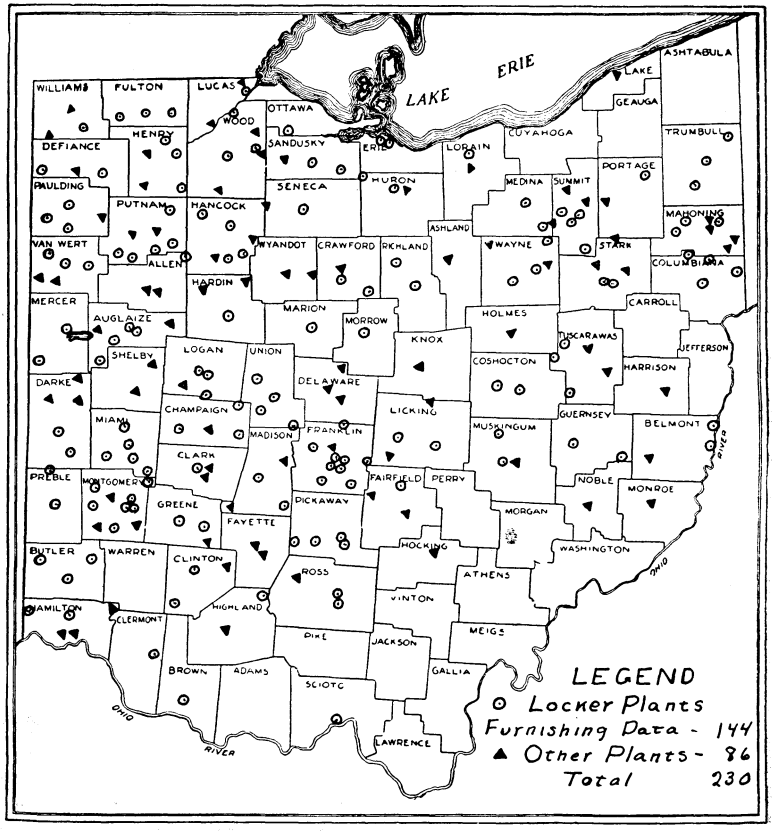

Fig. 1.—Cold storage locker plants operating in Ohio, April 1, 1945. (From list of those licensed by State of Ohio on that date.)

Affiliation With Other Business

The majority of the locker plants included in this study operate some other business in connection with the plant. Slaughter and curing facilities run by the plant as part of the locker service was considered as part of the plant operation and not as a separate business. Just those businesses actually in operation were counted. Intentions of entering other business in the near future were not counted.

Forty-five of the 144 locker plants were operating no other business. Twenty-eight plants operated combination grocery and meat markets. Nineteen operated meat markets without the grocery and 10 operated grocery stores but did not sell meats. Twenty-three plants were operated in conjunction with ice manufacturing plants, 12 had cold storage warehouse facilities, 8 sold coal, and 6 operated creameries.

Listed as other businesses operated in conjunction with locker plant operation by four or less plants were the following—packing plants, manufacture of ice cream, milk plants, general stores, elevators, electric goods, commercial freezing of fruits and vegetables, railroad car icing, fruit and vegetable cannery, poultry and egg marketing cooperative, hatchery, water-softening plant, distilled water plant, wholesale produce, beverage manufacturing, baked goods sale, electric utility, restaurant, cream station, cream and egg buying, and sale of home and farm freezers. Some locker plant operators were operating two, three, or four of the above along with the locker plant.

There was no attempt made to determine which—the locker plant or other business—was the most important in the combination.

Type of Plant

Three types of locker plants are represented by the 144 included in the study. The walk-in plant, where the patron walks directly into the cold room in which the lockers are located, was the predominating type. The floor type has the lockers below the floor in the cold room, and the lockers are raised by a hoist for access. In the automatic type, the locker is automatically brought to the door for access. In addition to the types mentioned, there were two combinations of these types, those of floor and walk-in, and those of automatic and walk-in. The type was not designated for three of the plants.

TABLE 1.—Number of locker plants by type and average number of lockers per plant for 144 Ohio plants

	Type of plants	Total number of lockers	Av. number of lockers per plant
Walk-in	127	66,822	526.2
Floor	4	1,670	417.5
Automatic	4	1,334	333.5
Combination of floor and walk-in	4	4,690	1172.5
Combination of walk-in and automatic	2	1,771	885.5
Not known	3	1,636	545.3
Total or average	144	77,923	541.1

Plant Ownership

Ownership of plants was divided into four types—individual, partnership, corporation for profit, and cooperative.

Corporations were responsible for most of the early development of cold storage locker service in Ohio. Of the 31 plants which were started before 1940, 23 or 74 percent were started by corporations. In most instances these earlier plants were started by corporations with cold storage or ice manufacturing facilities. The 23 plants owned by corporations, which started prior to 1940, represent 57.5 percent of all corporation-owned cold storage locker plants. Only three, or 5 percent of the plants owned by individuals were started before 1940. Ten percent of the partnership-owned plants started prior to 1940 and 20 percent of the cooperatively owned plants started before this date.

TABLE 2.—Number of cold storage locker plants and number of lockers by type of ownership for 144 Ohio plants

Ownership	Number of plants	Total number of lockers	Av. number of lockers per plant
Individual	62	26,045	420.1
Partnership	30	12,172	405.7
Corporation for profit	40	35,334	883.4
Cooperative	10	3,567	356.7
Not designated	2	805	402.5
Total	144	77,923	541.1

TABLE 3.—Number of cold storage locker plants by year of starting for different types of ownership. 144 Ohio plants

Ownership	Year starting in business											
	Before 1936	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945 (3 mos.)	Not given
Individual	.....	.....	1	.....	2	9	20	10	4	12	3	1
Partnership	.....	.....	2	.....	1	3	13	4	2	5	.....	.....
Corporation for profit	3	2	5	6	7	1	7	1	2	6	.....	.....
Cooperative	.....	.....	.....	1	1	1	1	3	1	1	1	.....
Not designated	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....
Total	3	2	8	7	11	14	43	18	9	24	4	1

Size of Locker Plants

There was a great variation in size of the 144 locker plants in Ohio on which information was obtained. However, almost half of the plants had between 200 and 500 lockers.

From the records obtained at the State Department of Agriculture, it was possible to determine the number of lockers in the 86 plants which were not included in this study. These plants had an average of 455 lockers each as compared to 541 for the 144 plants which furnished data relative to the plant and facilities.

TABLE 4.—Number of cold-storage locker plants grouped by number of lockers and percent of lockers in each group, for 144 plants in Ohio, April 1, 1945

Size of plant (number of lockers)	Number of plants	Total number of lockers in group	Percent	
			Of plants in group	Of lockers in group
0- 199	14	2,083	9.7	2.7
200- 299	24	5,759	16.7	7.4
300- 399	28	9,266	19.5	11.9
400- 499	18	8,064	12.5	10.3
500- 599	15	7,926	10.4	10.2
600- 699	11	6,905	7.6	8.9
700- 799	12	8,848	8.3	11.3
800- 899	4	3,266	2.8	4.2
900- 999	3	2,764	2.1	3.5
1000-1499	10	11,424	6.9	14.7
1500 and over	5	11,618	3.5	14.9
All groups	144	77,923	100.0	100.0

The smallest plant of the 144 included in this study had 60 lockers, and the largest plant had 3,036 lockers. The average of 541 lockers per plant is misleading because of the few very large plants which were included. A better figure to use is the "median" which means that there are as many plants larger as there are smaller than that number. The median plant in this group of 144 had 415 lockers.

Number of Lockers Installed By Year

The year of installation of lockers was given by 134 plants with 70,481 lockers. The remaining 7,442 lockers were installed from 1926 to 1944, but the exact year was not given. The distribution by year probably was little different than for those of the group where dates were given.

TABLE 5.—Installation of lockers, by years, in 134 cold storage locker plants in Ohio

Year installed	Number of lockers		Pct. of April 1945	
	Installed each year	Cumulative	Installed by year	Cumulative
1936	305	305	.4	.4
1937	1,540	1,845	2.2	2.6
1938	1,695	3,540	2.4	5.0
1939	3,362	6,902	4.8	9.8
1940	5,159	12,061	7.3	17.1
1941	14,237	26,298	20.2	37.3
1942	12,185	38,483	17.3	54.6
1943	11,223	49,706	15.9	70.5
1944	18,875	68,581	26.8	97.3
1945 (3 months)	1,900	70,481	2.7	100.0
Total	70,481	70,481	100.0	100.0

The installation for 1945 was for only a few plants, which had lockers installed during the first 3 months of the year. For the plants represented in this analysis, 80 percent of the lockers were installed in the four years, 1941 to 1944, inclusive.

Almost 27 percent of the lockers were installed in 1944. Fewer plants were opened than in 1941 but the larger number of lockers installed in 1944 was the result of both new plants and expansion of many existing plants. About 42 percent of the lockers in plants at the present time are lockers which have been added to those originally installed in the plants at time of opening.

Most plants reported that all lockers were rented and in use from the time of installation, although a few of those plants starting prior to 1940 reported some trouble in renting lockers for a year or two after opening.

Size of Lockers and Yearly Rental

Lockers of the 142 plants furnishing data relative to size varied from 3 to 9 cubic feet capacity. The great majority of lockers had a capacity of 6 cubic feet or slightly over. Twenty-three plants reported two or more sizes of lockers. In the following table, only those 140 plants which reported both size and yearly charge for lockers were included. The average charge for lockers of each size group is the arithmetic average of all charges reported for those sizes regardless of the number or type of lockers rented at the different rates. Unweighted averages were used since the number of lockers of different sizes in plants which had more than one size was not known.

TABLE 6.—Number of plants having lockers of designated capacity and yearly rental charges made, by capacity of lockers

Capacity in cubic feet	Number of locker plants having lockers of designated capacity	Highest and lowest rental charge made on designated size	Arithmetic average of rental charges
3 to 3.99	2	$5.00-$7.50	$6.25
4 to 4.99	6	7.50-12.50	10.64
5 to 5.99	14	9.00-13.50	11.17
6 to 6.99	116	10.00-18.00	12.80
7 to 7.99	16	10.00-16.00	12.42
Over 7.99	11	12.00-20.00	16.18
All sizes	*140	5.00-20.00	12.68

*The total of the plants having lockers of different sizes is higher than this total number of plants since some plants have more than one size of lockers.

Thirty-eight plants made the same charge for door and drawer lockers of the same size. Another two plants made the same charge for both types, except that the charge for the top tier of door lockers was less than for the other tiers.

There were 83 plants which made higher charges for drawer than for door lockers of approximately the same size. The difference in charge varied from $1 to $6 with an unweighted average of $2.59.

Services Rendered By Plants

Thirty-two of the 144 plants were furnishing slaughtering service when the information was obtained in late 1944 and early 1945. Several more plants stated their intention of adding such service just as soon as possible.

TABLE 7.—Rates charged for slaughtering by 32 cold storage locker plants in Ohio, late 1944 and early 1945

	Rates by head		Rates by hundred lb.	
	Highest and lowest	Average of all rates	Highest and lowest	Average of all rates
Hogs	$1.00 to $2.00	$1.58	$0.75 to $2.00	$1.21
Cattle	1.00 to 3.00	2.15	1.00 to 2.00	1.35
Veal	.75 to 1.75	1.30	1.00 to 1.75	1.25
Sheep and lambs	.50 to 1.50	1.05	1.00 to 1.75	1.25

Some of the 32 plants had the slaughtering facilities at the locker plant while the others did the butchering at the farm. A few additional plants had arrangements with custom butchers to furnish the slaughtering service for their patrons.

Only a few plants furnished information as to whether the hides were kept as part of the pay for slaughtering and therefore the rather sketchy information concerning this was not included. The returns for slaughtering would be somewhat higher than indicated by the table by the addition of the value of any hides retained as part of the slaughtering charge. Comparison of charges by head and by the hundred pounds for cattle is probably misleading without knowing more about the disposition of hides.

Processing and Other Services in the Plant

Data in the following table are a summary of the rates charged for services and combinations of services. In some cases, the rates were reported in slightly different terms, and it was necessary to adjust them as accurately as possible in order to make a summary.

TABLE 8.—Rates charged for processing and services rendered by 144 locker plants, late 1944 and early 1945

Processing operation or service	Number of plants reporting stated service‖	Number of plants reporting rate	Highest charge reported per lb.	Lowest charge reported per lb.§	Average all reported charges per lb.
			Cents	*Cents*	*Cents*
Cutting, wrapping, and freezing, including carcass chilling:					
Pork	137	129	4.0	1.0	2.28
Beef	137	129	4.0	1.5	2.32
Cutting and wrapping only	134	14	2.5	1.0	1.53
Wrap and freeze only	.....	5	3.0	1.0	1.70
Quick freeze only	137	35	2.0	0.5	0.87
Wrapping only	.....	3	1.0	0.5	0.67
Cutting only	.....	4	1.0	0.5	0.75
Chill room only	132	21	1.5	0.5	0.83
Smoking and curing	45	28	5.0	2.5	3.97
Lard rendering*	38	28	5.0	0.5	2.13
Processing fruits and vegetables†	81	38	7.0	1.0	2.11
Quick freezing fruits and vegetables‡	137	54	2.0	0.5	1.30
Grinding—for that part above usual amount	.....	10	3.0	1.0	1.70
Grinding—where made as extra charge in processing	.....	24	3.0	1.0	1.60
Grinding—where no other processing is involved	.....	6	2.0	1.0	1.83

*One plant charged 1 cent per pound more to persons not renting lockers. Eight plants include lard rendering in processing charge.

†Some of the charges reported for this may be for freezing only.

‡Some of the charges reported for this may include sealing packages or placing the product in packages and sealing.

§Pints of fruits and vegetables considered as 1 pound.

‖Blanks in this column means accurate number not determined.

Twenty-seven plants reported processing meats for home cold storage unit owners. Twenty-five made the same charge as to their own locker patrons. One charged $1 per hour, and one charged 1 cent more per pound than to those who rented lockers. Eighteen plants reported processing meat for patrons of other locker plants. One charged 1 cent per pound more for such service while the other 17 charged the same as to their own locker patrons.

Only a few reported poultry dressing service. The rate for the six plants reporting complete dressing of chickens averaged 19.5 cents per bird. The lowest charge was 10 cents and the highest 32 cents. Six other plants reported charges for cutting and wrapping poultry. The highest charge was 4 cents and the lowest was 2 cents per pound with an average of 2.8 cents. Five plants listed charges made for wrapping and freezing. This varied from 1 to 3 cents per pound and averaged 2.2 cents.

Minimum charges for fruit and vegetable processing were reported by 21 plants. The highest minimum charge made was 25 cents and the lowest was 5 cents. The average for all 21 plants reporting was 12.1 cents.

Some of the variation in charges made by different plants for the same service was due to a difference in the completeness of the service and also in combinations which could not be accurately separated. For example, eight plants included lard rendering in the general processing charge and in these cases such charges could not be separated.

A few miscellaneous services, such as boning meat, slicing meat, and dressing game, were not included in table 8 since they constitute such a small part of the total. Miscellaneous services rendered by some plants carried no fixed charge but were paid for on the basis of amount of work required.

Overflow Lockers

The demand for lockers was so great that only about one-half of the plants were maintaining any lockers or other space for overflow use. Less than half of those plants holding lockers for overflow had more than 20 lockers for that purpose. The 59 plants reporting the holding out of lockers for overflow had a total of 3,178 lockers held for such use but 1,750 of these were in nine plants. The 3,178 lockers constituted about 4 percent of the lockers in the 144 plants.

At least 484 of the lockers (in 10 plants) used for overflow were half-size lockers. Since a question as to size of overflow lockers was not asked specifically, it is not known how many of the remainder of the overflow lockers were of half-size and how many were full-size.

Charges made for overflow lockers were usually made on a monthly basis. The lowest charge was 50 cents and the highest was $4 made by a plant for the third month's use. This high charge is made to discourage use of overflow lockers for use other than temporary. The average charge for 61 plants giving such information was $1.18 per month. This average includes charges made for all types of lockers, including half-size. The charges made, as reported by nine plants, for half-size lockers for overflow use was 79 cents per month. Three plants charged by the day for overflow storage—two at 5 cents and the other at 3½ cents. Seven plants charged by the package or by the pound. At least two plants limited the use of such storage to 3 months and at least two charged more for the second and third months than for the first.

Insurance on Locker Contents

Insurance on locker contents was carried by at least 75 of the 144 locker plants. No information was obtained from 28 plants and a few of these may have had contents insurance. The remaining 41 plants were carrying no insurance.

Charges were made for insurance by 58 of the 144 plants, but 8 of these failed to state what the charge was. The other 17 plants carrying locker contents insurance made no direct charge for it.

The lowest charge made was 25 cents per year and the highest was $6 per year. This latter charge was for an unusually complete coverage against any kind of loss and is omitted in arriving at the average charge of 47½ cents per year. The variation in charges for the most part was due to the difference in coverage offered. The most usual coverages were from $25 to $50. A few plants charged by the month rather than by the year, and these rates were increased to their yearly equivalent for summary purposes.

Amount of Food Stored in Lockers Per Year

Twelve locker plants furnished data relative to the amount of food stored in their plant for a year's time. Six of these plants furnished exact data from records on volume. Three gave reliable estimates based on amount of processing income and the other three furnished estimates, but did not state on what basis they were made. Since some of the estimates are based on amount processed, the amount actually stored is a little less than the amount given due to loss of weight from carcass to package weight. These data, when reduced to a "per locker" basis, varied from 144 pounds per year to 553 pounds. The average for all 12 plants was 288 pounds and for the 6 plants which gave exact data was 311 pounds per year.

On the basis of charges for locker rental, insurance, and processing the weighted average cost to the users per locker for a year was $19.60 for the 12 plants with an average cost of 6.7 cents per pound for the food stored. For the 6 plants which furnished exact data, the average cost per locker was $19.91 with the per pound cost being 6.4 cents. These figures are not exact because the amount of processing done at different rates per pound was not always known and approximations were necessary. Also, it was not possible to determine the average locker rental exactly because the number of lockers of each type was not known. It was not possible to include the minimum charge where it was used. The amount of correction for these three inaccuracies would be small and the figures quoted here are nearly enough exact to give a good indication of patron expenditures in the use of locker storage of food.

To the cost of using cold storage lockers for preserving food as given above, must be added the cost of extra driving done in going to and from the plant. This averaged 101.7 miles per locker user for 1,080 patrons, as shown in table 7, of this bulletin. At 5 cents per mile for the driving, the cost would be increased by $5.085 per patron, or about $3.66 per locker. This adds about 1¼ cents per pound to the direct cost of food preserved in lockers.

PATRON USE OF LOCKERS

This part of the cold storage locker study deals with the facts concerning the use of lockers by patrons and their future intentions which will decide the future for the cold storage locker industry. How well satisfied they are with treatment at locker plants, how well they like frozen foods, whether they think it is economical or more convenient than older conventional types of food preservation and other factors dealt with here have an important bearing on the future of the locker. On the basis of their individual reaction to these factors as a group, the patrons will either continue to rent lockers, purchase a home cold storage unit, purchase a unit and continue to rent a locker, or discontinue use of frozen foods.

It was not possible to include as many questions as was desirable in the schedule going to the patron and expect a good percentage of return. Therefore, many items which might have contributed to make the study more valuable were not included. A letter was sent to each locker operator who furnished lists of patrons' names asking their opinions of the most important questions to include. The proposed schedule was modified accordingly and as many of the suggestions as possible were incorporated.

The exceptionally high percentage return of questionnaires no doubt was due to the high degree of interest in the use of freezing in preserving food. A surprisingly small number of patrons were dissatisfied with the quality of frozen food generally. Instances of bad experiences were rather plentiful, but most of those mentioning such instances realized that they were due to mistakes in management or techniques and had not allowed it to alter their opinion of the value of the method of preservation.

It should be remembered that all information dealing with views of locker patrons was given by people who have had experience with frozen food and that those people who have not yet had such experience might present different views to use of frozen foods in the future.

Families of Locker Patrons

Of the questionnaires returned, 899 were from farm locker users and 486 from town or city users. A few lived on small suburban acreages and were classed as non-farm unless it was indicated that they produced a substantial amount of the products stored in their lockers.

TABLE 9.—Relative ages in families of 1,385 farm and non-farm users of 51 Ohio cold storage locker plants

	Farm users		Non-farm users		Total	
	Number	Percent	Number	Percent	Number	Percent
Families	899		486		1,385	
Number 12 years of age or over	2.893	80.6	1,381	79.6	4,273	80.3
Per family	3.208		2.844		3.085	
Number under 12 years of age.	693	19.4	353	20.4	1,046	19.7
Per family	.762		.741		.755	
Total individuals	3,585	100.0	1,734	100.0	5,318	100.0
Per family	3.970		3.585		3.840	

The farm families were composed of an average of 3.21 persons 12 years of age or over and .76 children under 12 years of age for a total of 3.97 individuals per family. The non-farm families averaged 2.84 persons 12 years of age or over and .74 children under 12 years of age or a total of 3.58 individuals. The difference in size of farm and non-farm families was therefore almost entirely made up of those 12 years of age or older. The 1,385 families represented by the locker users included in the study had almost exactly the same percentage of individuals under and over 12 years, as reported by the 1940 Census.

Years of Experience With Cold Storage Lockers

Each patron was asked how long they had been using cold storage locker facilities. This was answered by 1,382 and showed that the majority had at least 1 year's experience. The average for the whole group was 3.045 years. This figure is likely somewhat higher than the average for all of the plants of the State because the lists of patrons were taken mostly from plants which had been in operation for a considerable period of time. It was thought that the opinions on locker use from those who had at least 1 year's experience would be of more value than from those who had little experience.

Some patrons reported having used cold storage lockers for a substantially longer period than the locker plant at which they are now patrons had been in operation. This means that they had shifted from other plants to the one at which they are now storing food when it was opened, due to a more convenient location. Ten years was the longest period of locker use reported by any patron. The few who reported more than 7 or 8 years had likely been storing food in a few lockers provided by some cold storage warehouses previous to the development of the specialized cold storage locker plants.

TABLE 10.—Years of experience with cold storage locker food preservation (prior to 1945) by 1382 farm and non-farm users of 51 Ohio locker plants

Years of experience	Farm users		Non-farm users		Total	
	Number	Percent	Number	Percent	Number	Percent
Less than 1	13	1.5	8	1.7	21	1.5
One but less than 2	115	12.8	58	11.9	173	12.5
Two but less than 3	215	24.0	157	32.3	372	26.9
Three but less than 4	284	31.7	157	32.3	441	31.9
Four but less than 5	165	18.4	67	13.8	232	16.8
Five and over	104	11.6	39	8.0	143	10.4
Total	896	100.0	486	100.0	1,382	100.0

Thirty percent of the farm users of cold storage lockers had been using the service for 4 years or more while only 21.8 percent of the non-farm users had been using it that long. This is enough difference in experience with lockers to account for part of the differences in opinions and intentions between the two groups shown later in the detailed analysis.

Number of Lockers Rented by Patrons

The 1,384 patrons reporting the number of lockers rented by them were using an average of 1.4 lockers each. This figure cannot be assumed as entirely accurate because in some instances lockers were rented at two plants and the report was nearly always on the basis of what they had rented at the one plant. The actual number rented therefore would be raised by the additional lockers rented elsewhere. This was at least partly offset by patrons who divided lockers with other families but did not report in this way on the schedule. According to operators, this is a very frequent occurrence with patrons. This factor would lower the average. It was impossible to estimate accurately the influence of these two factors on the average number of lockers per family or per patron so the average given above was not adjusted. From the data gathered it would appear that the average might be slightly higher than the above figure for those answering the questionnaire.

TABLE 11.—Number of lockers rented per patron by farm and non-farm users in 51 Ohio plants

Number of lockers rented	Farm users		Non-farm users		Total	
	Number	Percent	Number	Percent	Number	Percent
*Less than 1	2	0.2	.....	.....	2	0.1
1	564	62.8	331	68.1	895	64.7
*1½	7	.8	1	.2	8	.6
2	289	32.2	133	27.4	422	30.5
3	34	3.8	18	3.7	52	3.7
4 or more	2	.2	3	.6	5	.4
Total	898	100.0	486	100.0	1,384	100.0

*Fractions are the result of division of lockers with another family (in many instances).

The farm users rented an average of 1.41 lockers each and the non-farm users an average of 1.37 lockers.

Distance of Patrons from Locker Plants

Only one of the 1,385 who responded to the questionnaire failed to state the distance from their home to the locker plant. The distance varied from those who lived within one city block of the plant to two who lived 35 miles from the plant where they rented lockers. Farm users lived an average of 5.92 miles away and city users an average of 3.37 miles with an average for the two groups of 5.03 miles.

TABLE 12.—Classification of 1,384 patrons of 51 Ohio locker plants by distance from their lockers

Distance from plant	Farm users		Non-farm users		Total	
	Number	Percent	Number	Percent	Number	Percent
Less than 1 mile	25	2.8	172	35.4	197	14.3
1 to 1.99 miles	55	6.1	95	19.5	150	10.8
2 to 2.99 miles	91	10.1	49	10.1	140	10.1
3 to 3.99 miles	115	12.8	27	5.6	142	10.3
4 to 4.99 miles	102	11.4	14	2.9	116	8.3
5 to 9.99 miles	359	40.0	80	16.5	439	31.7
10 to 19.99 miles	143	15.9	44	9.0	187	13.5
20 miles or more	8	.9	5	1.0	13	1.0
Total	898	100.0	486	100.0	1,384	100.0

From the numerous complaints of those patrons who lived over 5 miles from the locker plant, it is apparent that this distance is about the maximum from which most locker plants should expect to draw satisfied users of the service. Figure 2 was prepared showing the area within 5 miles of locker plants in Ohio as of April 1, 1945. Almost 35 percent of the area of the state is within 5 miles of locker plants.

Since only one family in 23, or 4.3 percent of the families in Ohio, can be served by locker plants (at one locker per family) it follows that only a small percentage of those families within 5 miles of plants can be served.

In general, but not entirely, locker plants have had their major development in the better farming areas of the state. Future development of locker plants would be difficult to predict because such a small proportion of the

population can be served with present facilities and future demand for lockers by those not now using it is not known. If the demand for lockers were to continue to grow as in the last few years, most any county of the state would need several additional plants to care for the demand. But such a growth is doubtful since many families prefer to have their own home units and demand for lockers may grow more slowly when a normal supply of foods are again available through regular channels.

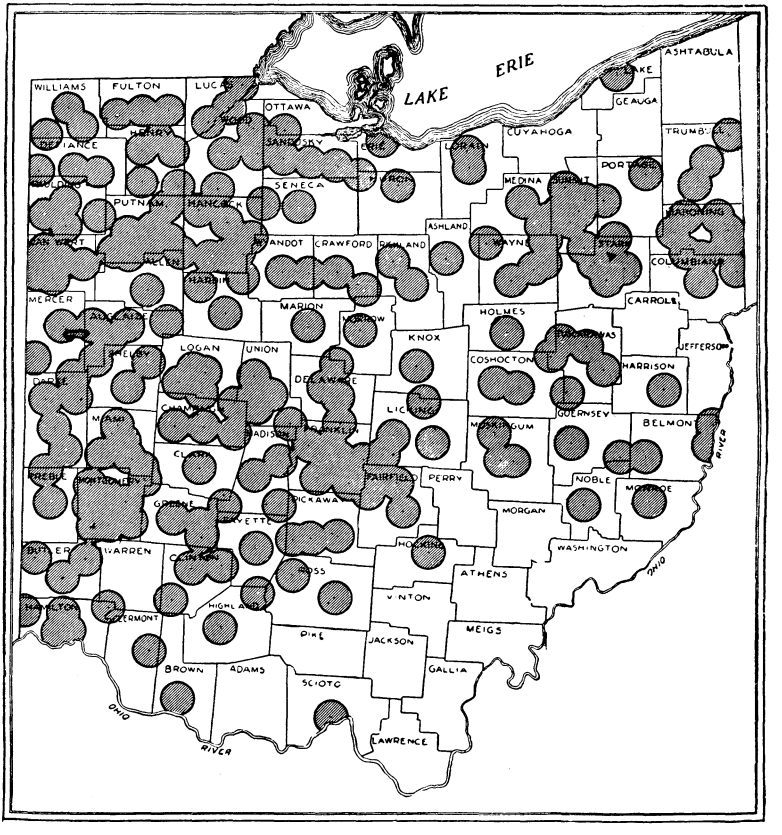

Fig. 2.—Areas within 5 miles of cold storage locker plants in Ohio, April 1, 1945

Figure 3 shows the number of lockers by county which would be necessary to furnish 50 percent of farm families with a locker. This map was made up assuming that 75 percent of the lockers in existing plants were rented by farm families and that they were renting an average of about 1.4 lockers per family, the average shown in the study. The number of lockers required to serve the remainder of the 50 percent of farms is also figured at 1.4 lockers per farm. The 50 percent figure was selected to show how many more lockers would be necessary to serve farms in Ohio if the locker development eventually assumed the importance in Ohio which it has already assumed in several other states.

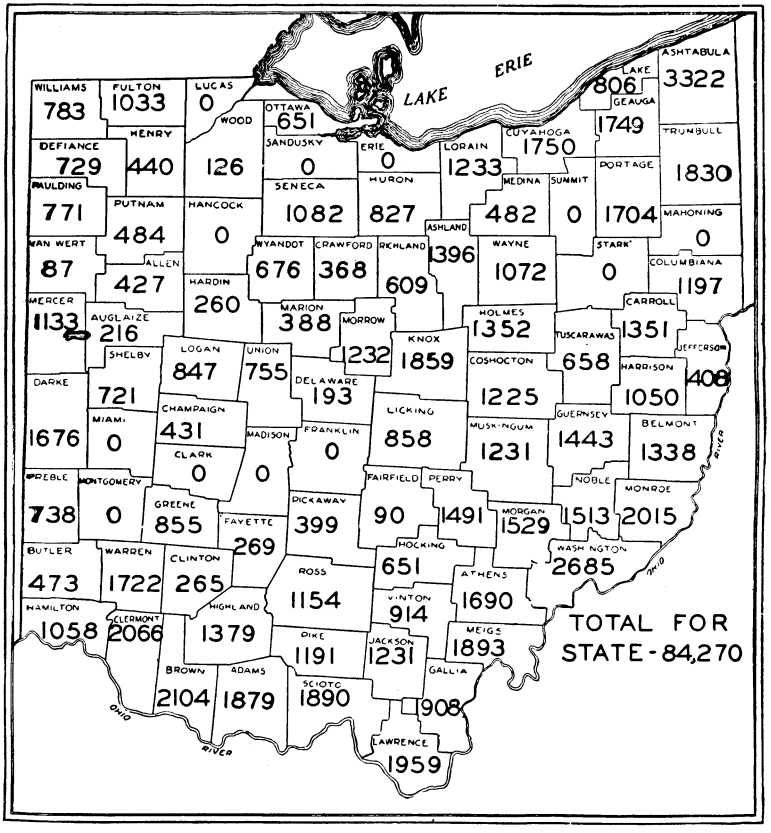

Fig. 3.—Number of lockers, in addition to those already installed, necessary to furnish 50 percent of farm families in each county with an average of 1.4 lockers each (assumptions and method of computation are given on page 17 of text.)

For those counties which have a heavy urban population, the proportion of lockers rented by farmers would be lower than the assumed average of 75 percent, and therefore the number of lockers calculated as necessary to supply farmers in those counties would be greater than shown. No accurate correction factor could be arrived at and therefore no correction was made. For example, the map would indicate that no more lockers would be necessary to serve farmers in Franklin County. But much less than 75 percent of the lockers in this county are rented by farmers so the figure for this county and a few other urban counties are not as accurate a measure as for those counties with the higher percentages of rural population.

Trips to Lockers and Driving Involved

One of the large items in the cost to the patron of using cold storage food lockers is in the driving done in connection with putting food in and getting it from lockers for use as needed. Each patron was asked to estimate, as accurately as possible, the number of trips made to the locker monthly, and also

the number of the total trips made yearly for no other purpose than going to the locker. Most were able to estimate their monthly trips and also the extra trips yearly. Some estimated only the total number of trips yearly. In summarizing the trips made monthly, only those schedules reporting trips for a complete year were used in order to obtain an accurate comparison of months of the year. Data for months were complete on 1,182 schedules. Table 13 shows the number of trips by months for the 1,182 locker users and the average per locker user.

TABLE 13.—Monthly trips for 1,182 cold storage locker users of 51 Ohio locker plants for 1 year*

Month	Number of trips for entire group	Average number per locker user	Percent of year's total
January	4,990	4.22	7.5
February	4,983	4.22	7.5
March	5,149	4.36	7.8
April	5,254	4.44	7.9
May	5,533	4.68	8.4
June	6,042	5.11	9.1
July	6,177	5.23	9.3
August	6,253	5.29	9.4
September	6,004	5.08	9.1
October	5,464	4.62	8.2
November	5,207	4.41	7.9
December	5,213	4.41	7.9
Year	66,269	56.07	100.0

*The year represented in most cases is from Oct. 1, 1943 to Sept. 30, 1944.

The seasonal variation of trips made to the locker plants by locker users is not very pronounced. Lockers are used by most families for year round food supplies and most of the variation in visits to the plant comes from extra trips made for putting food into storage.

TABLE 14.—Number of trips per year made by farm and non-farm locker users classified by distance from the locker plant for 1,238 patrons of 51 Ohio locker plants

Distance from plant	Farm users			Non-farm uscrs		
	Number of patrons	Total number of trips	Trips per patron	Number of patrons	Total number of trips	Trips per patron
Less than 1 mile	18	1,107	61.5	149	12,014	80.6
1 mile but less than 2 miles	51	3,570	70.0	83	5,008	60.3
2 miles but less than 3 miles	81	5,022	62.0	44	2,739	62.2
3 miles but less than 4 miles	104	5,990	57.6	24	1,103	46.0
4 miles but less than 5 miles	91	5,249	57.7	16	700	43.8
5 miles but less than 10 miles	330	16,365	49.6	71	3,007	42.4
10 miles but less than 20 miles	125	4,915	39.3	38	1,122	29.5
20 miles or more	8	243	30.4	5	104	20.8
Total	808	42,461	52.6	430	25,797	60.0

One factor in determining the frequency of visits to the locker plants was the distance from the patron's home to the plant. The suggestion was made by a large number of locker users that lockers should be located so that they would be more easily accessible to more patrons. This would indicate that a considerable increase in number of locker plants would be desirable from the

standpoint of convenience for the users. There were several comments that locker service to be of most value should be within 5 miles of anyone who wished to use such service. This would mean a plant to serve about 80 square miles of area. (Territory now within 5 miles of a plant is shown in figure 2.)

A total of 1,238 locker users estimated the number of trips made during the year. The average for this group was 55.1. For those who lived on farms the average number of trips per year was 52.6 while the non-farm users made an average of 60.0 trips. This difference in number of visits can be accounted for, in part, by the fact that the non-farm users on the average lived about 2½ miles closer to the locker plant than the farmers.

Table 15 shows the number of trips made per year and the amount of driving involved in making the trips for a year's time. There were 1,238 locker users who reported the number of trips made during the year for no other purpose than going to the locker plant.

Of this group, 58 did not state their total driving involved in those trips when lockers were visited. For this reason the percentage of trips and driving which can be attributed entirely to locker visits is figured for the 1,080 for which both figures are known.

TABLE 15.—Trips made and mileage driven in going to locker plants for a 1-year period by a representative group of locker users of 51 Ohio plants

	Number of locker users reporting	Av. No. of trips per user per year	Average mileage driven per user per year
All trips when locker was visited	1,238	55.1	457.5
Trips made exclusively to go to lockers where both total trips and mileage are known*	1,080	11.9	101.7

*In addition to the 1,080 locker users who gave complete data on trips and driving, 58 said they made trips exclusively to go to the locker plants but failed to state how many such trips were made or total driving involved in such trips.

The 12,900 extra trips reported by the 1,080 patrons was 22.4 percent of their total trips and the mileage for these extra trips accounted for 20.5 percent of their driving on all trips when they went to the locker plant. The amount of driving directly chargeable as cost of renting a locker was therefore 20.5 percent of all driving. To this amount could be added whatever portion of the remainder of the total driving which was thought reasonable. It would differ with different users, and at best, would be an arbitrary figure. On the basis of 20.5 percent of driving for the 1,080 patrons it would mean approximately 72.6 miles per locker or 101.7 per patron per year for which the lockers were directly responsible. This would be relatively insignificant in the cost of food—about one and one-fourth cents per pound for the food stored.

Future Use of Lockers

In an attempt to determine what was likely to happen in the use of lockers for storing food in the post-war period, a question was included asking whether they expected to store more, less, or the same amount after the war. This was asked for meat, vegetables, poultry, and fruit. Table 16 summarizes this for farm and non-farm users.

TABLE 16.—Intentions as to future use of locker storage for selected products by farm and non-farm users of 51 Ohio locker plants

Amount which users intend to store in future	Farm users				Non-farm users			
	Meat	Vege-tables	Poul-try	Fruit	Meat	Vege-tables	Poul-try	Fruit
	Number							
More	118	249	114	279	122	137	87	157
Less	21	28	30	19	38	43	37	27
Same	739	529	632	510	299	264	296	255
None	5	42	44	42	8	13	25	18
No information	16	51	79	49	19	29	41	29
Total	899	899	899	899	486	486	486	486
	Percent							
More	13.1	27.7	12.7	31.0	25.1	28.2	17.9	32.3
Less	2.3	3.1	3.3	2.1	7.8	8.8	7.6	5.5
Same	82.2	58.8	70.3	56.7	61.5	54.3	60.9	52.5
None	.6	4.7	4.9	4.7	1.7	2.7	5.1	3.7
No information	1.8	5.7	8.8	5.5	3.9	6.0	8.5	6.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

It must be remembered that the information in this table, as well as the other information in the bulletin, has been given by those who have had experience with use of frozen food lockers. The satisfaction and future intentions of this group may not be an accurate measure of what those who have not used lockers will do in the future with respect to frozen foods. General satisfaction with frozen foods is indicated by the small number who said they would store less in the future. This varied somewhat between products and between farm and non-farm locker users. The percentage of non-farm users who expected to store less food was 7.8 compared to 2.8 for farmers. The percentage of those who expected to store less of a product was lowest for fruit in the case of both groups. A higher percentage of each group expected to increase storage of fruit than for any of the other products.

The greatest difference between the two groups was in the intentions pertaining to storing meat. One-fourth of the non-farm group expected to increase meat storage as compared to 13 percent of the farmers. Inability of those in the non-farm group for the past 2 or 3 years to get as much meat for storage as they would like probably was responsible for this.

Most of those who said they would store none of a particular product were not now storing that product. When it was known for sure they had stored some of that product in the past but would discontinue it in the future it was included in the "Less" classification.

All locker users were asked whether they expected to produce or buy their meat, fruits, and vegetables for locker storage after the war. It was thought best to ask what they expected to do "after the war" rather than as of 1944 or 1945 with abnormal conditions. This point is particularly important in view of the fact that such a large percentage of both farm and non-farm users said they expected to increase the amount of products stored, after the war.

Most farmers who rent lockers intend to produce their own meat and vegetables for locker storage after the war. Only 2.1 percent of this group expect to buy all meat for storage and 4.7 percent will produce part and buy

part. Since 90.8 percent of them will produce all meat stored, the question can well be raised about the quality which they will use for storage. Far less than this percentage of farmers produce high-grade beef, and since most of these will be storing some beef there is some chance that any meat of poor quality coming from lockers may be blamed on locker storage.

TABLE 17.—Number and percent of locker users of 51 Ohio plants classified by method they expect to use in obtaining products for storage in lockers

How locker users expect to obtain products for lockers	Farm users			Non-farm users		
	Meat	Vege-tables	Fruit	Meat	Vege-tables	Fruit
	Number					
Grow own	816	798	395	159	301	116
Buy	19	16	258	273	126	279
Grow part and buy part	42	21	173	36	37	65
None or no information	22	64	73	18	22	26
Total	899	899	899	486	486	486
	Percent					
Grow own	90.9	88.8	43.9	32.7	62.0	23.9
Buy	2.1	1.8	28.7	56.1	25.9	57.4
Grow part and buy part	4.7	2.3	19.3	7.4	7.6	13.4
None or no information	2.4	7.1	8.1	3.7	4.5	5.3
Total	100.0	100 0	100.0	100.0	100.0	100.0

Almost a third of the non-farm locker users said they would produce their own meat for storage. This means that at least a third of the locker users who live in town or city either own a farm or have connections which will enable them to have their own animals for slaughter.

Very few of the farmers and only about one-fourth of the non-farm locker users expect to buy vegetables for storage. Most of these products will be grown at home. A smaller percentage of the fruit for storage will be produced by the locker users than of either of the other two products. Fruit stored in lockers received enthusiastic recommendations and almost a third of all of the locker users expressed intentions of increasing their storage of this product. Any increase in the total demand for small fruits will depend on whether freezing of fruit replaces canning or supplements it.

Table 17 is significant for the fact that it shows intention to use a high percentage of home-grown products for locker storage. It is a strong possibility, therefore, as cold storage of foods increases, the sales of some of these products through commercial channels will be materially changed and in many decreased considerably. This would be a trend in the direction opposite to that of the last few decades when percentages of fruits and vegetables and meats purchased at retail sources had been increasing—particularly in rural areas.

Desire for Addition of Slaughtering and Curing Services

One of the important functions of locker plants is the services they render to their patrons in getting the food ready for storage. Almost all plants in Ohio offer the service of cutting and wrapping of meats, but slaughtering and meat curing is done by considerably less than half of the Ohio plants. Of the

51 plants represented in this portion of the study, 16 were slaughtering and 17 were curing meat. Only 8 of the 51 plants are now furnishing both services. Slaughtering service at the plant was available to 34 percent of the farm patrons and to 19 percent of the non-farm patrons included in this study, while curing service was available to 39 percent of the farm patrons and to 41 percent of non-farm patrons. Those to whom such services were not available were asked whether or not they were interested in having them made available. Table 18 summarizes the answers to this question.

TABLE 18.—Stated desires of locker users of 51 Ohio plants for slaughtering and curing service at plants where such service is not now rendered

	Slaughter service*				Curing service*			
	Yes	No	No information	Total	Yes	No	No information	Total
Farm users	317	121	152	590	267	108	175	550
Non-farm users	178	71	145	394	142	50	96	286
Total	495	192	297	984	409	158	271	838

*Slaughter service was being rendered by 16 of the 51 plants and curing by 17 plants on which this table is based. The slaughtering service by plants was available to 309 farmer locker users and to 92 non-farm users of the 1,385 from whom information was obtained. The meat curing service was available to 349 farmers and to 198 non-farm locker users in the group.

There was little difference between the farm and non-farm locker users in this respect. Two and one-half times as many answered in the affirmative as answered negatively for both groups. The fact that a large percentage of the non-farm locker users expressed a desire for slaughtering service is an indication that they expect to purchase live animals as a source of meat for their lockers when it becomes available. No doubt fewer patrons stated a desire for curing service than for slaughter service because the locker storage is looked upon by most users as a fresh meat source. There is also a fairly large number of patrons who do not expect to store pork.

Intent of Patrons to Purchase Home Units

Over half of the 1,385 locker users stated definitely that they expected to purchase a home cold storage unit when they become available. Fifty-one percent of the farm group stated this intention, and 57 percent of the non-farm group expect to purchase. The difference may be accounted for partly by the fact that many farmers do not have electric current available.

TABLE 19.—Intentions of locker users of 51 Ohio plants concerning the purchase of home units when they become available

	Intentions							
	Will purchase		Will not purchase		Undecided and miscellaneous		No answer	
	Number	*Percent*	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
Farm users	457	50.9	214	23.8	172	19.1	56	6.2
Non-farm users	276	56.8	112	23.0	81	16.7	17	3.5
Total	733	52.9	326	23.5	253	18.3	73	5.3

As can be seen in table 19, the "undecided" and "miscellaneous" answer group is very large. Many of these answers indicated that the locker users were interested in purchasing a home unit but had some reservations. In no case were such answers placed in the group with those who stated outright that they wanted to purchase a unit. Included also in this group were 38 who said they already had a home cold storage unit. A few expected to build their own. Some of the most frequent answers which were included in this group of "undecided or miscellaneous" were; "don't know", "undecided", "questionable", "maybe", "perhaps", "if priced right", and "likely." Very likely a fair percentage of this group will become purchasers.

Those locker users who stated that they expected to purchase a home unit were asked to state the maximum price they would be willing to pay as well as what size they would like to purchase. Answers to these two questions are important in helping to determine the probable effectiveness of their stated desire to purchase. Prices were stipulated by 331 where desired size was stated. These figures are summarized in table 20.

TABLE 20.—Number of prospective home unit purchasers from a representative group of locker users of 51 Ohio plants by size of unit they want and average maximum price they are willing to pay

Size	Farm users		Non-farm users		Total	
	Number stating size and price	Average of maximum prices stated	Number stating size and price	Average of maximum prices stated	Number stating size and price	Average of maximum prices stated
5 cubic feet	12	$171.67	19	$210.53	31	$195.48
10 cubic feet	89	236.24	54	247.59	143	240.52
15 cubic feet	45	327.78	25	384.00	70	347.86
15+ cubic feet	25	411.00	12	541.67	37	453.38
Combination refrigerator and cold storage unit	30	272.50	13	263.46	43	269.78
No size designated	5	170.00	2	150.00	7	164.29
Total	206	$277.35	125	$297.56	331	$284.99

At the time of this study, information was not available as to size of home units which would be offered by manufacturers. This meant that the question included arbitrary figures as to size. The sizes shown in table 12 are the arbitrary figures selected. The validity of this information for application to sizes which are offered to purchasers will depend somewhat upon how closely they correspond to those in the table.

The 10-cubic-foot unit was preferred by almost half of those who stated their preference. Most of these families have been renting lockers of the standard capacity of slightly over 6 cubic feet. Their choice of size has no doubt been influenced by what they know can be stored per cubic foot of space. For this reason it seems that the figures should be reasonably reliable as far as demand for size is concerned. The fact that 43 out of 331 who stated both a choice of size and price said they wanted a combination refrigerator and cold storage unit would indicate a rather heavy potential demand for such a unit.

The average of the maximum price which potential buyers stated needs to be investigated a little further to determine how many of the figures making up the average are unreasonably low. To help point this out, table 21 is set up by class intervals at prices for each size.

TABLE 21.—Number of prospective home unit purchasers from a representative group of locker users of 51 Ohio plants by size of unit specified and by maximum price stated

Size	Maximum prices stated							
	Farm users				Non-farm users			
	$0 to $124.99	$125.00 to $199.99	$200.00 to $299.99	$300.00 and over	$0 to $124.99	$125.00 to $199.99	$200.00 to $299.99	$300.00 and over
5 cubic fset.....	3	6	2	1	1	6	7	5
10 cubic feet.....	3	20	42	24	5	12	17	20
15 cubic feet.....	2	4	10	29	1	0	8	16
15+ cubic feet....	0	1	1	23	0	0	1	11
Combination refrigerator and cold storage unit.	0	9	12	9	1	0	7	5
No size designated.	1	1	3	0	1	0	1	0
Total.....	9	41	70	86	9	18	41	57

Only nine in the farm group and nine in the non-farm group of locker users stated maximum prices of $125 or less, which they would be willing to pay. Over 75 percent of the two groups combined stated $200 or higher as their maximum. The lowest price stated was $25 and the highest $1,500. The latter figure was for a very large unit which would have to be custom-built. Several named prices of $750 to $1,000, in most cases for 15 cubic feet or larger units.

Thirty-eight of the 331 who gave a definite price or maximum stated two sizes or types as acceptable to them. In table 21 above the first mentioned choices were used for tabulation. Of the second choices:

Two were for 15 cubic feet with an average maximum price of $250.

Five were for larger than 15 cubic feet with an average maximum price of $400.

Thirty-one were for combination refrigerator and storage unit with an average maximum price of $351.61.

In addition to the 331 stating dollar and cents maximum prices, others made the statement that they would be willing to pay market price for their choice of sizes. This was stated by nine who wanted 10-cubic-foot units, by nine who wanted 15-cubic-foot, five who wanted larger than 15-cubic-foot, and by four who wanted combination units. There were 33 who stated the size they desired but had given no thought to price.

The average size of unit desired by the farm group was about 1 cubic foot larger than desired by the non-farm group. A direct relation existed between the number of lockers the prospective purchasers of home units were renting and the size of home unit they desired. The group stating the choice of 5-cubic-foot home units were renting an average of 1.20 lockers per family. The group desiring 10-cubic-foot units were renting an average of 1.32 lockers, those desiring 15-cubic-foot units were renting 1.55 lockers per family, and those desiring larger than 15-cubic-foot units were renting an average of 1.73 lockers. The group desiring combination units were renting 1.39 lockers per family.

Probable Effect of Home Unit Purchase on Processing at Plant

Of much importance to the locker operators is the effect of the purchase of home units on the amount of processing which will be done at the plant. The question covering this referred only to meat because fruit and vegetable processing is done by only a few plants. The question read—"If you purchase a home storage unit, how much of your meat processing will you have done at the locker plant?" There was so much difference in the number of meat processing services offered by the different plants that the question was necessarily left in the general terms. In some cases, the answers stated what part of the processing they would like to have done if they purchased a home unit but no attempt was made to find the particular service which was most desired.

TABLE 22.—Amount of meat processing which 784 locker users of 51 Ohio plants stated they would have done at the locker plant if they purchased home units

Amount	Farm group		Non-farm group		Total	
	Number	Percent	Number	Percent	Number	Percent
All	140	27.6	143	51.6	283	36.1
Part	110	21.7	44	15.9	154	19.6
Same as before	13	2.6	4	1.5	17	2.2
None	244	48.1	86	31.0	330	42.1
Total	507	100.0	277	100.0	784	100.0

There were 784 locker users who stated the amount of meat processing they would have done at the plant if they purchased home units. Some answered this question who had not yet made up their mind definitely to purchase but were decided concerning the future use of meat processing services. Those who said they would have all their meat processing done at the locker plant have been well satisfied with it in the past and were likely having all of it done there. The ones who said they would want part of the meat processing done comprise the group most difficult to compare with past use of locker meat processing services. In a large number of cases, the part specified was no doubt about the same as they had done at the plant in the past. For others it means a decrease but in almost no cases will it mean an increase.

The big loss of processing income from those who intend to purchase home units will come from the 42.1 percent who expect to have no meat processed at the plant. Part of these had been doing part of their own processing before but for the large majority of these it will mean the substitution, at least temporarily, of home processing for processing by the locker plants.

The total loss of processing to locker plant owners can be only roughly estimated from the figures in table 22. It could be estimated with fair accuracy that between 45 and 55 percent of the meat processing done for those who expect to purchase the home units will be done by locker plants.

Satisfaction, Criticisms, and Recommendations of Locker Patrons

The final question asked of the locker users contained three parts. First, they were asked whether their experience with storage of food in cold storage lockers was satisfactory. Second, they were asked to state what they thought the advantages of such food preservation were. Lastly, they were asked what

they thought could be done to improve the value of such storage to them. One entire page was set aside for these opinions and in almost half the returned questionnaires the entire page was used.

In some ways, this proved the most valuable part of the information obtained. It provided a chance for each locker user to set down those things concerning locker use which seemed most important.

Of the 1,259 answers which could be tabulated concerning satisfaction with locker use, 1,182 indicated they were satisfied. Included were many degrees of satisfaction, however, ranging from satisfaction with some reservation to extreme enthusiasm with locker use. At least a fourth of the users were enthusiastic and said they would not want to do without cold storage preservation of food. A large number of those who said they were satisfied said they were satisfied although the cost seemed high for the amount of product stored.

There were 77 users who said they were not satisfied. Reasons given for this dissatisfaction were off-flavored products, too expensive, poor plant management, and the fact that they just couldn't see any advantage in cold storage lockers. Part of the 77 said they had already discontinued or were soon going to discontinue use of the lockers. A few were using lockers for emergency purposes only.

Satisfaction was expressed by a surprisingly high percentage of the locker patrons when taking into consideration the fact that practically all of the plants had come into existence since 1937. It could be expected that many mistakes would be made by such an infant industry which would cause dissatisfaction. Where reasons for satisfaction were given, it was evident that most users were answering from the standpoint of how well they liked the foods which they had stored. However, a large number also stated that they were well pleased with the treatment received from the management of the plant.

The advantage mentioned most frequently was that of the assurance of fresh food throughout the year. This was mentioned by 498. As stated previously, a closely related advantage was that of the assurance of quality food. This was stated by 331 locker users. The higher quality of the food was attributed to several causes. Some reported it as a result of being able to buy products when quality was highest and assuring the retention of quality by freezing. Others attributed the better quality entirely to freezing food rather than canning or curing. Still others believe the quality actually to be improved over the fresh product by freezing. Some attributed quality of meat to the fact that they could choose the quality they desired in wholesale quantity better than by purchasing at retail as needed for table use.

The ease of preparation of foods for locker use as compared to other methods of preservation was mentioned by 363 locker users. Much less waste and loss compared to canning or curing meats, fruits, and vegetables was claimed by 171 locker users. Savings by purchasing foodstuffs in wholesale quantities and when prices were low was claimed by 87, and saving of surplus products which would otherwise be wasted, by 35. In addition to these specific answers, 167 said it was an economy to store food in lockers without stating where they thought the economy was affected. Another 84 said the advantage of lockers was in making it possible to have home-grown products fresh and accomplish a saving at the same time they were getting quality and good preservation.

Convenience of having food available when wanted for special occasions and in saving shopping time as well as having a supply when it could not be obtained through normal retail channels was stressed by 208 users of lockers. Having a variety of food available from which to select was thought important by 46. Twenty-one also thought the expert processing offered by the lockers was a real advantage. Another advantage mentioned many times as part of the convenience was the fact that when locker storage was used it was not necessary to use all uncured meat a short time after butchering.

From the advantages as mentioned by over 1,000 locker users it is evident that the assured supply of quality fresh foods the year round at reasonable prices and the saving of time and labor were the satisfactions experienced by most locker users.

Although no attempt was made to find what products were most satisfactory or most unsatisfactory stored in lockers there were enough comments made concerning the specific products to merit mention. Among meats, beef was mentioned as the most satisfactory by almost all who volunteered information. At the other extreme, 81 volunteered information that pork was either unsatisfactory from storage or not nearly so good as when fresh. At least this many more said pork was not good after any length of time—recommendation of not over 3 months for pork storage being common. Poultry from storage was mentioned by about 20 patrons as excellent and by about the same number as not very good.

The vegetables (named in order of the number of times mentioned) which were most liked after storage were corn, peas, limas, green and wax beans, asparagus, broccoli, rhubarb, and spinach. A few users said vegetables generally were the most satisfactory product stored. In total, some specific vegetable or vegetables as a whole were mentioned 85 times as extremely satisfactory. These comments were to a large extent offset by those who said vegetables in general or some specific vegetable proved very unsatisfactory. In order of times mentioned, they were as follows: green beans, corn, peas, limas, asparagus, and beets. Vegetables were mentioned 67 times as the poorest products stored.

Fruits were mentioned favorably in the following order: strawberries, cherries, peaches, red raspberries, berries of all kinds, blackberries, and grapes. These, and fruits generally, were mentioned 78 times. Unfavorable comments concerning fruits were, in order, peaches, strawberries, black raspberries, pears, plums, grapes, cherries, and blackberries. The total number of times fruit was mentioned unfavorably was 33. Apparently fruit had proven satisfactory to a larger percent of locker users than had vegetables.

Recommendations by users for making the use of cold storage lockers of more value to them included an extremely wide variety of answers. A few things were mentioned often enough to deserve a great deal of effort on the part of the locker operators in attempting to make them more satisfactory to the patron. The following tabulation is set up in order of the number of times mentioned and comments in text following it will help explain what is meant where clarification is needed.

Recommendations	Number of times stated
More convenient plant location	157
Home unit—either to displace or supplement locker	134
Lower locker rental charge	128
Better management or better and more plant help	110
Addition of curing or slaughtering service	97
More convenient lockers both as to access without ladder and as to getting food out	73
Keep plant open more hours (especially during summer)	71
More care not to mix different patrons' products and protection against theft	62
Have choice of varied sizes of lockers	30
Meat for sale by locker plant	25
Lower processing charge	25
Addition of fruit and vegetable processing service	23
Reduce plant odors in foods	21
Education and information on preparation of food for storage	19
Access to locker in warm room	18
Addition of delivery service	9
More courteous treatment	9
Cooperatively owned lockers	7
More quick freeze capacity	4

In addition to these recommendations were several more which were not tabulated because they were usually named as part of other suggestions but are probably just as important as some shown in the tabulation. The need for better containers and wrapping paper was expressed by 35 locker users. The main objection was to the waste of space which came about from using round containers. Also, containers which would not leak juices were desired by many. More expert processing was mentioned often, but many of those who mentioned this said that competent help was not available for their locker plant and that the situation no doubt would be improved when more help became available.

There was also a large number of suggestions that more care in handling locker keys and of checking products in and out of lockers should be practiced. These people thought the chances of loss of products was too great and should be reduced. No doubt some extra labor in checking products and in exercising extra precaution about the keys would pay the locker operator well in the good will which it would create. Some plants have rather rigid inspection of all packages leaving the locker to make sure they belong to that person and there was almost no complaint from the locker users of these plants. If each locker renter were required to carry his or her own key and sign up for the use of a master key when the key was forgotten, it would materially reduce cause for complaint. This is especially true with large plants where the managers do not know every locker holder. The practice of stamping the number of the locker on each package as wrapped also is effective in preventing mixing of different patrons' products.

Some complaints were voiced concerning charges made for freezing. Some thought it was too high and others believed this service should be included free with the locker charge. These comments are an indication that some people would rather have all charges lumped into one amount rather than pay directly for separate services. This viewpoint is difficult to justify because each should pay largely in proportion to amount of service demanded. A few patrons complained about the lack of cleanliness about the plant, but these were few enough to indicate satisfactory conditions at most plants.

Several other locker users said they liked the locker plant processing and handling because it was possible for much more care to be practiced in cleanliness than at home where they were not equipped to do the work.

Heading the list of the recommendations for improving locker service was that of having locker plants located so that less driving was necessary. Practically all such comments came from those living 5 miles or farther from the plant. To have a plant within 5 miles of everyone in Ohio would mean plants at something over 400 locations. No doubt there are many lightly populated areas where plants could not be justified this close together. At present in Ohio, plants are located in such a way that about 35 percent of the area of the state is within 5 miles of locker plants.

The statement that home units would improve the locker storage service was second in importance in terms of number of times mentioned. Some of those who recommended home units said they would be of much value in supplementing locker storage while others said they would displace entirely the need for lockers. The suggestions of the latter group were not for improvement of locker plant service but of displacing it. These two groups were not separated because in about one-third of the cases it was not possible to know just what they meant. Many of the patrons who recommended home units as an important adjunct to lockers thought that with present lack of home refrigeration, too many trips to the locker plant are necessary.

The third largest group thought a lowering of the cost per cubic foot of storage space was very desirable. This is an indication that a substantial group believed locker storage was somewhat costly for the benefits obtained.

Almost half of those who said better management was very desirable said they realized that poor management partly was due to inability to hire competent help at the present. Access to lockers more hours of the day was desired by some who could not conveniently visit the plant during the day. This was particularly true of farmers who were compelled to make special trips to the locker plant when it was open during the day.

The inconvenience of getting food out of lockers (especially the door type) was the cause of a substantial number of suggestions for improvement in this feature of locker storage. About twenty of those who suggested the improvement thought compartments or trays in the lockers would prove of much benefit. It was also suggested by several that lockers should not be installed any higher than could be reached without a ladder. Apparently the difference in price of lower and upper lockers was not enough to compensate for the inconvenience of the upper ones.

A few complained of ammonia odors or "plant" odors in their food. Others said they would be much better satisfied if meat could be prevented from taking on an "aged" flavor.

A surprisingly small number said that more courteous treatment was desirable. Addition of pick-up and delivery service was recommended by a few locker patrons.

Some miscellaneous comments concerning complaints, recommendations and advantages mentioned in each case by a very few but which may be worth mentioning are as follows:

1. Lockers are too expensive and unhandy yet to be real successful.
2. Lockers are indispensable.
3. Satisfaction depends on personnel of plant.
4. Locker floors are unsafe.
5. The patron should not have to notify locker plant when meat is to be brought in for processing.
6. The locker manager should furnish detailed list of products when placed in lockers.
7. The plant should have overflow space.

FUTURE PROSPECTS FOR LOCKER PLANTS IN OHIO

From information gathered in connection with this study it is certain that increased growth can be expected in locker plants, even with the coming development of home cold storage units. The war has stimulated interest in frozen food to the place where facilities are entirely inadequate to supply the demand. Almost every plant has a waiting list for lockers which makes the future look bright for expansion in size of the present plants and in the addition of many new plants.

Caution should be observed, when materials are again available in unlimited amount for building or expanding, that there does not occur an over-expansion of lockers beyond the real demand. Two things point to the need for caution. First, it appears that a large number of present locker patrons wish to have home units and a large number of these may no longer retain lockers. Second, retail stores may expand and improve the sales of frozen products in such a way as to compete seriously with the storage in lockers.

Demand for processing of meats, from slaughtering to curing, will no doubt increase with the increase of home unit use and can become the most important source of locker plant income if developed properly.

More attention should be given in the future to efficiency of plants, both as to their size and as to their operation. Rates for processing services will have to be such as not to invite too much competition from other sources for that business. Much of the future success of locker plants depends on efficient operation at the same time they are rendering satisfactory and courteous service. Too much dependence should not be placed on the fact that there are many people without locker service now who would like to have it.

If the development of locker service in other states can be taken as a measuring stick for Ohio it would indicate a place for considerable increase in facilities in rural areas. In areas where electric power is available to most farmers the home units will claim a good portion of the increase in facilities since they are more convenient as far as driving is concerned than lockers at plants.

A rather complete survey of the need for a new locker plant or for the expansion of an existing one would go a long way toward insuring success of such projects. Such an analysis should take into consideration the competing plants already in existence, the number of prospective patrons, the number of patrons of existing plants who expect to purchase home units and thereby release lockers for others, and the services which prospective patrons desire. If this sort of analysis or survey is carefully made, it will be of much help not only to the individual plant but to the cold storage industry of the State as well. Without such analysis many locker plants can be expected to experience difficulties in operation or even complete failure.

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